

ABSTRACT OF THE DISCLOSURE

Disclosed are methods and apparatus for characterizing defects by using X-ray emission analysis techniques. The X-rays are emitted in response to an impinging beam, such as an electron beam, directed towards the sample surface where a defect resides. It may
5 also be used to help determine where the void(s) are with respect to the interconnect structure. Methods disclosed are for spatially locating defects in or on integrated circuits. Also disclosed are methods for identifying the elemental composition of defects and spatially locating different elemental components of defects.